onto a non-yielding surface, such as concrete or steel, impacting at an orientation most likely to cause damage. ''Deformation''means a cylinder or valve that is bent, distorted, mangled, misshapen, twisted, warped, or in a similar condition.

(ii) Each cylinder with a valve must be equipped with a protective metal cap, other valve protection device, or an overpack which is sufficient to protect the valve from breakage or leakage resulting from a drop of 2.0 m (7 ft) onto a non-yielding surface, such as concrete or steel. Impact must be at an orientation most likely to cause damage.

(2) Each UN cylinder containing a Hazard Zone A or Hazard Zone B material must have a minimum test pressure in accordance with P200 of the UN Recommendations (IBR, see §171.7 of this subchapter). For Hazard Zone A gases, the cylinder must have a minimum wall thickness of 3.5 mm if made of aluminum alloy or 2 mm if made of steel or, alternatively, cylinders may be packed in a rigid outer packaging that meets the Packing Group I performance level when tested as prepared for transport, and that is designed and constructed to protect the cylinder and valve from puncture or damage that may result in release of the gas.

(e) *Interconnection*. Cylinders may not be manifolded or connected. This provision does not apply to MEGCs containing Hazard Zone B materials in accordance with §173.312.

[67 FR 51642, Aug. 8, 2002, as amended at 67 FR 61289, Sept. 30, 2002; 68 FR 24660, May 8, 2003; 71 FR 33880, June 12, 2006; 76 FR 3371, Jan. 19, 2011]

§173.41 Sampling and testing program for unrefined petroleum-based products.

(a) *General*. Unrefined petroleum-based products offered for transportation must be properly classed and described as prescribed in §173.22, in accordance with a sampling and testing program, which specifies at a minimum:

(1) A frequency of sampling and testing that accounts for any appreciable variability of the material (*e.g.*, history, temperature, method of extraction [including chemical use], location of extraction, time of year, length of time between shipments);

(2) Sampling prior to the initial offering of the material for transportation and when changes that may affect the properties of the material occur (*i.e.*, mixing of the material from multiple sources, or further processing and then subsequent transportation);

(3) Sampling methods that ensure a representative sample of the entire mixture, as offered, is collected;

(4) Testing methods that enable classification of the material under the HMR;

(5) Quality control measures for sample frequencies;

(6) Duplicate sampling methods or equivalent measures for quality assurance;

(7) Criteria for modifying the sampling and testing program; and

(8) Testing or other appropriate methods used to identify properties of the mixture relevant to packaging requirements (*e.g.*, compatibility with packaging, identifying specific gravity for filling packages).

(b) *Certification*. Each person who offers a hazardous material for transportation shall certify, as prescribed by §172.204 of this subchapter, that the material is offered for transportation in accordance with this subchapter, including the requirements prescribed by paragraph (a) of this section.

(c) *Documentation, retention, review, and dissemination of program*. The sampling and testing program must be documented in writing (*i.e.* hardcopy or electronic file thereof) and must be retained for as long as the sampling and testing program remains in effect, or a minimum of one year. The sampling and testing program must be reviewed at least annually and revised and/or updated as necessary to reflect changed circumstances. The most recent version of the sampling and testing program must be available to the employees who are responsible for implementing it. When the sampling and testing program is updated or revised, all employees responsible for implementing it must be notified, and the most recent version must be made available.

(d) *Access by DOT to program documentation.* Each person required to develop and implement a sampling and testing program must maintain a copy of the sampling and testing program documentation (or an electronic file thereof) that is accessible at, or through, its principal place of business, and must make the documentation available upon request at a reasonable time and location to an authorized official of the Department of Transportation.

[80 FR 26746, May 8, 2015]

Subpart C—Definitions, Classification and Packaging for Class 1

SOURCE: Amdt. 173–224, 55 FR 52617, Dec. 21, 1990, unless otherwise noted.

§ 173.50 Class 1—Definitions.

(a) *Explosive.* For the purposes of this subchapter, an *explosive* means any substance or article, including a device, which is designed to function by explosion (*i.e.*, an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provisions of this subchapter. The term includes a pyrotechnic substance or article, unless the substance or article is otherwise classed under the provisions of this subchapter.

(b) Explosives in Class 1 are divided into six divisions as follows:

(1) *Division 1.1* consists of explosives that have a mass explosion hazard. A mass explosion is one which affects almost the entire load instantaneously.

(2) *Division 1.2* consists of explosives that have a projection hazard but not a mass explosion hazard.

(3) *Division 1.3* consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

(4) *Division 1.4* consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

(5) *Division 1.5*[1] consists of very insensitive explosives. This division is comprised of substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.

(6) *Division 1.6*[2] consists of extremely insensitive articles that do not have a mass explosion hazard. This division is comprised of articles that contain only extremely insensitive substances and that demonstrate a negligible probability of accidental initiation or propagation.

[Amdt. 173–224, 55 FR 52617 Dec. 21, 1990, as amended at 56 FR 66267, Dec. 20, 1991; 66 FR 45183, Aug. 28, 2001; 68 FR 48569, Aug. 14, 2003; 78 FR 1074, Jan. 7, 2013]

§ 173.51 Authorization to offer and transport explosives.

(a) Unless otherwise provided in this subpart, no person may offer for transportation or transport an explosive, unless it has been tested and classed and approved by the Associate Administrator (§ 173.56).

(b) Reports of explosives approved by the Department of Defense or the Department of Energy must be filed with, and receive acknowledgement in writing by, the Associate Administrator prior to such explosives being offered for transportation.

[Amdt. 173–224, 55 FR 52617, Dec. 21, 1990, as amended by 66 FR 45379, Aug. 28, 2001]

§ 173.52 Classification codes and compatibility groups of explosives.

(a) The classification code for an explosive, which is assigned by the Associate Administrator in accordance with this subpart, consists of the division number followed by the compatibility group letter. Compatibility group letters are used to specify the controls for the transportation, and storage related

[1] The probability of transition from burning to detonation is greater when large quantities are transported in a vessel.

[2] The risk from articles of Division 1.6 is limited to the explosion of a single article.